

Ultra-Wideband, DC Pass Directional Coupler

50Ω 20dB Up to 50W 0.5 to 18 GHz

ZUDC20-183+

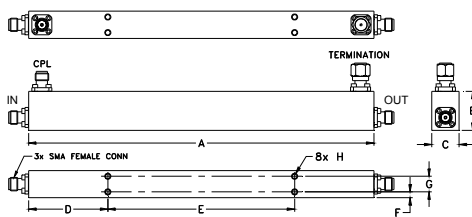
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	3A
Supplied Termination	1W
Permanent damage may occur if any of these limits are exceeded	

Coaxial Connections

INPUT	IN
OUTPUT	OUT
COUPLED	CPL
TERMINATION (50Ω) INCLUDED	—

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E
6.47	.73	.51	1.48	3.500
164.34	18.54	12.95	37.59	88.90
F	G	H		wt
.11	.293	#4-40		grams
2.79	7.44	UNC-2B		120.0

Features

- ultra wide frequency range, 0.5 to 18 GHz
- good coupling flatness, ± 0.5 dB typ.
- good directivity, 22dB typ. up to 4 GHz
- good VSWR, 1.3:1 typ.
- DC current pass through input to output

Applications

- cellular
- lab use
- WiMax
- ISM
- GSM
- PCN



Generic photo used for illustration purposes only

CASE STYLE: HT1967

Connectors	Model No.
SMA	ZUDC20-183+

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

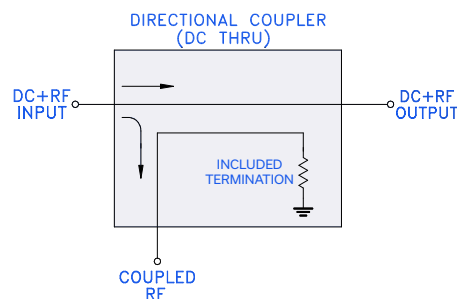
Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		0.5		18	GHz
Nominal Coupling (include flatness)	0.5 - 18	—	20 $\pm$ 2	—	dB
Coupling Flatness	0.5 - 4		± 0.3	± 0.5	dB
	4 - 12.4	—	± 0.4	± 0.6	
	12.4 - 18	—	± 0.6	± 0.9	
Mainline Loss	0.5 - 4	—	0.4	0.6	dB
	4 - 12.4	—	0.9	1.2	
	12.4 - 18	—	1.3	1.8	
Directivity	0.5 - 4	18	22	—	dB
	4 - 12.4	12	17	—	
	12.4 - 18	—	12	—	
Return Loss (In & Out)	0.5 - 4	—	21	—	dB
	4 - 12.4	—	19	—	
	12.4 - 18	—	19	—	
Return Loss (Coupling)	0.5 - 4	—	21	—	dB
	4 - 12.4	—	18	—	
	12.4 - 18	—	18	—	
Input Power ^{1,2}	0.5 - 4	—	—	50	W
	4 - 12.4	—	—	25	
	12.4 - 18	—	—	10	

1. At 25°C with no DC current. Derate linearly to 20, 10, 4W at 100°C

2. Peak power 3kW

Electrical Schematic



Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

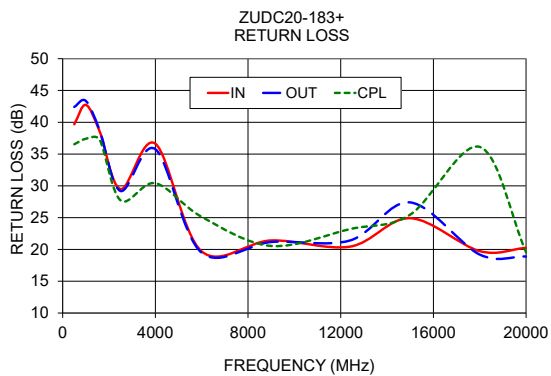
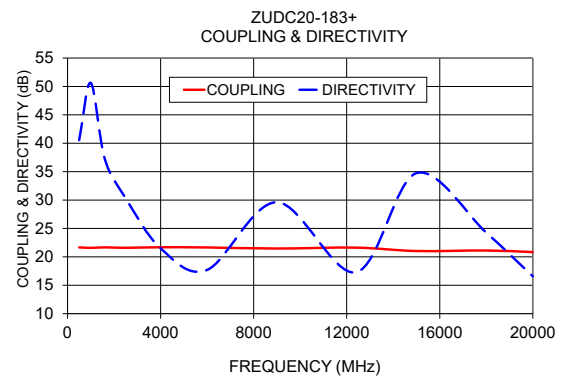
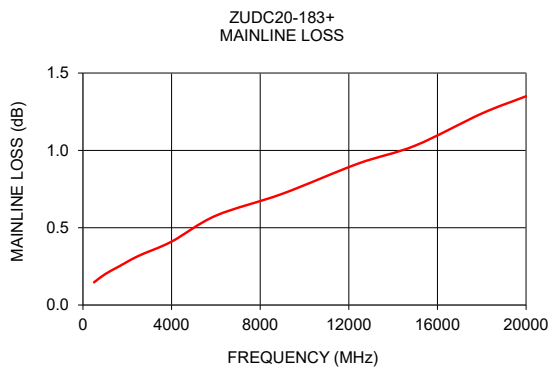


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Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
100	0.06	32.02	50.75	46.19	43.87	43.94
500	0.15	21.67	40.56	39.68	42.41	36.54
1000	0.20	21.59	50.63	42.74	43.35	37.40
1600	0.25	21.68	37.27	38.52	38.69	37.23
2500	0.32	21.60	30.33	29.49	29.19	27.72
4000	0.41	21.69	21.52	36.63	35.77	30.42
6000	0.58	21.66	17.70	19.69	19.48	25.13
9000	0.72	21.47	29.63	21.42	21.17	20.55
12400	0.91	21.63	17.28	20.44	21.41	23.20
15000	1.03	21.03	34.75	24.91	27.40	25.47
18000	1.24	21.12	24.26	19.73	19.19	36.12
20000	1.35	20.83	16.58	20.26	18.89	19.56



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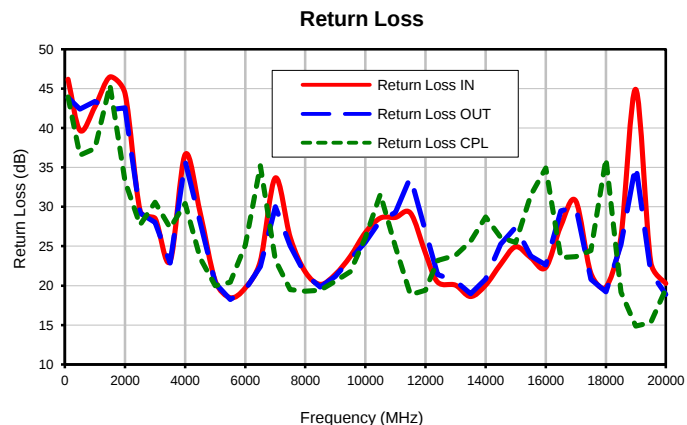
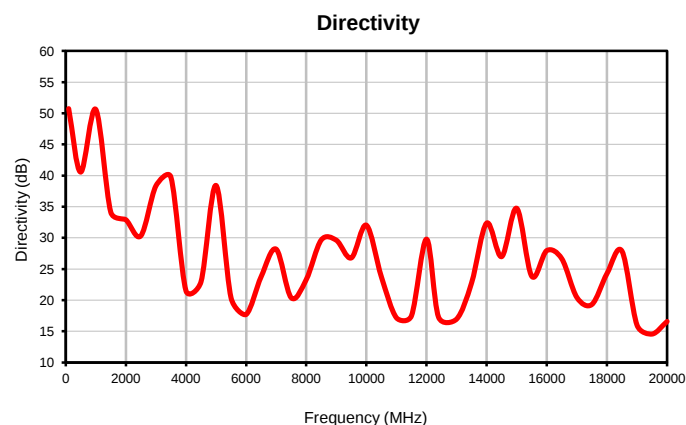
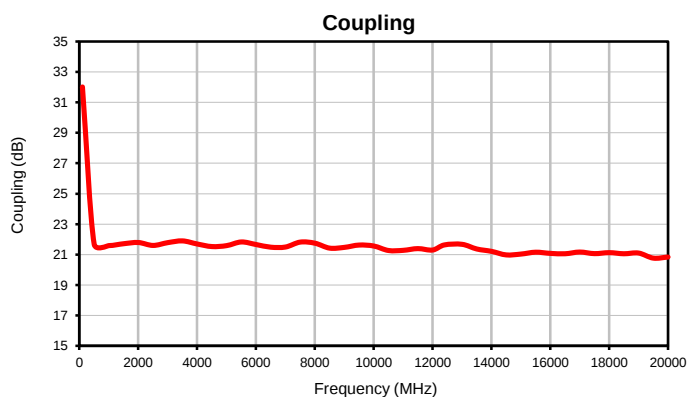
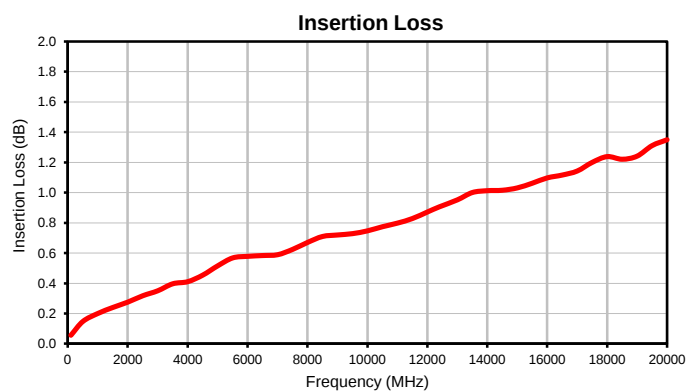
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Typical Performance Data

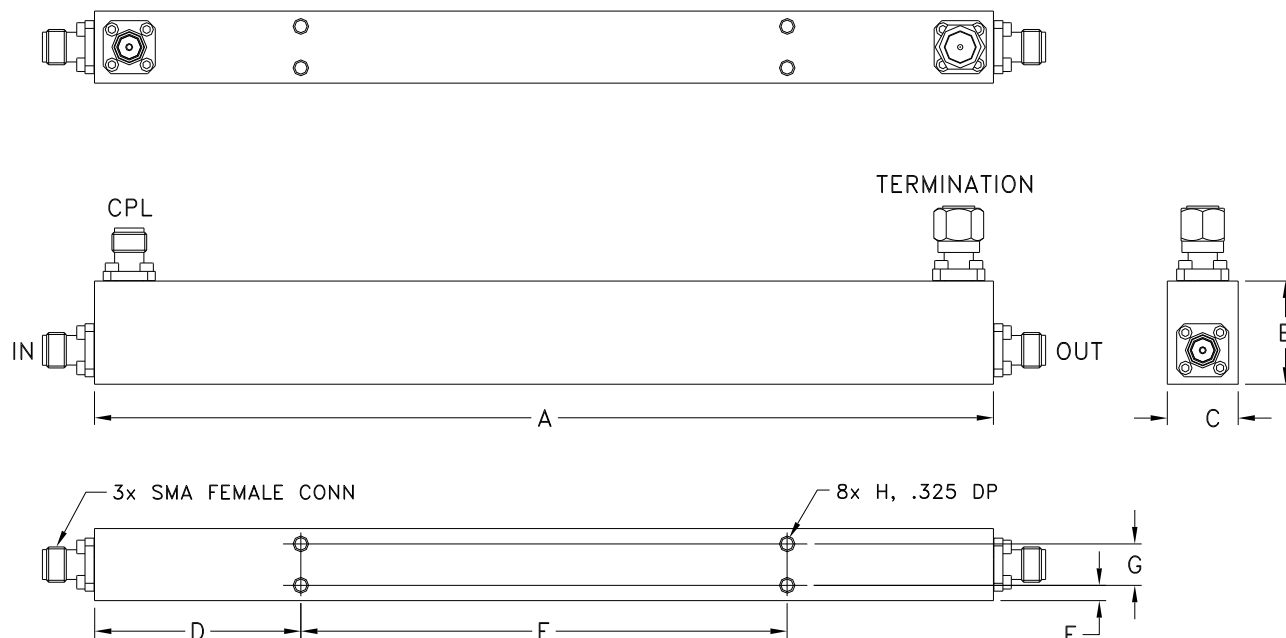
FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS (dB)		
				IN	OUT	CPL
100.0	0.06	32.02	50.75	46.19	43.87	43.94
500.0	0.15	21.67	40.56	39.68	42.41	36.54
1000.0	0.20	21.59	50.63	42.74	43.35	37.40
1500.0	0.24	21.71	34.13	46.49	42.32	45.45
2000.0	0.27	21.79	32.91	44.34	42.57	33.26
2500.0	0.32	21.60	30.33	29.49	29.19	27.72
3000.0	0.35	21.78	38.34	28.50	28.04	30.58
3500.0	0.40	21.90	39.74	23.10	22.86	27.31
4000.0	0.41	21.69	21.52	36.63	35.77	30.42
4500.0	0.45	21.52	22.94	29.22	28.01	23.46
5000.0	0.52	21.58	38.42	20.58	20.29	19.99
5500.0	0.57	21.83	20.37	18.45	18.25	20.42
6000.0	0.58	21.66	17.70	19.69	19.48	25.13
6500.0	0.58	21.48	23.77	23.05	22.43	35.22
7000.0	0.59	21.49	28.18	33.65	30.00	23.23
7500.0	0.62	21.82	20.39	26.06	25.05	19.51
8000.0	0.67	21.75	23.29	21.72	21.46	19.29
8500.0	0.71	21.42	29.67	20.14	19.84	19.40
9000.0	0.72	21.47	29.63	21.42	21.17	20.55
9500.0	0.73	21.62	26.79	23.70	23.35	21.75
10000.0	0.75	21.56	32.03	26.72	25.49	26.07
10500.0	0.77	21.26	23.73	28.56	28.25	31.58
11000.0	0.80	21.28	17.17	28.64	29.26	24.95
11500.0	0.83	21.39	17.49	29.19	33.80	18.83
12000.0	0.87	21.30	29.80	24.10	26.90	19.43
12400.0	0.91	21.63	17.28	20.44	21.41	23.20
13000.0	0.95	21.67	16.96	20.03	20.60	23.84
13500.0	1.00	21.36	22.78	18.60	18.96	25.64
14000.0	1.01	21.21	32.37	20.04	20.82	28.72
14500.0	1.02	20.98	26.99	22.68	25.26	26.09
15000.0	1.03	21.03	34.75	24.91	27.40	25.47
15500.0	1.06	21.15	23.84	23.54	23.76	31.49
16000.0	1.10	21.08	27.96	22.26	22.63	34.91
16500.0	1.12	21.05	26.65	27.52	29.49	23.56
17000.0	1.14	21.16	20.44	30.74	30.00	23.66
17500.0	1.20	21.06	19.31	21.60	20.80	24.45
18000.0	1.24	21.12	24.26	19.73	19.19	36.12
18500.0	1.22	21.05	27.87	25.96	25.20	19.19
19000.0	1.24	21.10	16.00	44.90	35.39	14.84
19500.0	1.31	20.76	14.56	22.95	21.70	15.31
20000.0	1.35	20.83	16.58	20.26	18.89	19.56



Typical Performance Curves

Outline Dimensions

HT1967



CASE #	A	B	C	D	E	F	G	H	J	K
HT1967	6.47 (164.34)	.73 (18.54)	.51 (12.95)	1.48 (37.59)	3.500 (88.90)	.11 (2.76)	.293 (7.44)	#4-40 UNC-2B	--	--

CASE #	L	M	WT. GRAM
HT1967	--	--	120.0

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .03$; 3Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish: Painted Blue, Pantone 286 crinkle.

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Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to +85 °C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C